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Evidencing impact of educational developments: The 'Influence Wheel' and its use in a CETL context

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Large-scale educational development initiatives are widely used to trial and introduce change. One such is the Centre for Excellence in Teaching and Learning (CETL) initiative in England, now drawing to a close. An interim evaluation of this initiative revealed some excellent practice but no major impact. As CETLs strive to gain or sustain funding, their need to evidence their impact gains importance. This paper considers the notion of impact and contends that the audience dictates the meaning and measurement of the term. It reviews the evolution and trialling of an innovative tool, the Influence Wheel, which attempts to show selected aspects of impact graphically as an interactive webpage. Developed through an action research project funded by the Centre for Inter-professional e-Learning (CIPeL CETL), the tool employs the doughnut graph facility within Microsoft ® Office Excel in a novel way. The tool models CIPeL's influence at local, national and international levels. A small-scale evaluation of the tool found that it communicated aspects of impact effectively despite issues of usability and data completeness. The particular context is illustrative of how the Influence Wheel can be used. The tool has potential to reflect alternative understandings of impact, and may therefore be of interest to others in further and higher education seeking to communicate project achievements visually.

Keywords: action research; CETL; Excel; project visualisation; stakeholder evaluation

Introduction

Large-scale educational development initiatives are widely used by governmental bodies to respond to socio-economic pressures and technological developments. Project teams are encouraged to compete for funding to introduce change into particular further education and higher education institutions. Funders may seek to establish the impact of such pioneering exemplars through theory-based evaluation, through formal project management methods modelled on commercial sector approaches (Baume, Martin, and Yorke 2002), or a combination of these. While evaluation of such initiatives may be 'disappointingly inconclusive', an understanding of what works in particular contexts adds to our sum of knowledge (Blamey and Mackenzie 2007, 440).

This paper describes the development and application of a software tool, the Influence Wheel, as part of a particular educational development project's evaluation strategy. From an underlying spreadsheet, the tool can represent selected aspects of impact according to the interests of the intended audience. The particular context in which it has been developed is illustrative of how the Influence Wheel can be used. The potential for such an adaptable tool to be used more widely to demonstrate or analyse the impact of other educational development projects is considered.

Context of this study

In early 2005, HEFCE, the Higher Education Funding Council for England, approved investment of over £300 million between 2005 and 2010 to fund 74 Centres for Excellence in Teaching and Learning (CETLs). The initiative was designed both to reward those who

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already demonstrated teaching excellence, and to fund additional investment in order to cross boundaries and extend benefit to students, teachers and institutions (HEFCE 2007a). The CETLs represent a wide range of disciplines, pedagogical activity and collaboration between higher education institutions. A number of further education colleges are included amongst CETL partners.

Both self-evaluation and meta-evaluation of the CETLs are being undertaken in parallel. Each CETL submitted an interim self-evaluation report to HEFCE in summer 2007. These are published on each CETL's website (HEFCE 2007b). All reports were required to be open and evidence-based, but the guideline format, length and content could be adapted to suit the specific CETL context (HEFCE 2004; HEFCE 2007c). The meta-evaluation report (Saunders et al. 2008) represents the CETL initiative at its half-way point. It draws on the self-evaluation reports as well as findings from over 700 interviews with stakeholders in the CETL programme including a number of unsuccessful bidders. The meta-evaluation reveals 'an overall positive narrative' (4) of the CETL initiative, some excellent practice (largely limited to 'enclaves') but little evidence of a 'step-change' in teaching and learning. The uncertain future of the CETLs is reported as a matter of concern for many stakeholders.

As the initiative approaches its end-point, the need for CETLs to evidence their impact becomes more important to the teams, but their target audience is changing. There is some indication that the CETL initiative is losing importance in the eyes of HEFCE. For example, reference to CETLs is harder to find than formerly on the HEFCE website: no longer a news item, its pages may be found by using the search facility <www.hefce.ac.uk>. As a consequence of their perceived uncertain future, CETLs are looking for alternative sources of funding within and beyond their home institutions (Saunders et al. 2008, 20) creating an imperative to demonstrate impact.

The questions therefore arise:

- What will count as impact for CETLs?
- How might a CETL demonstrate that it has had an impact on teaching and learning practice on, and beyond, its original audience?
- How might CETLs adapt impact evidence for new audiences?

What will count as impact?

Impact is a contentious and complex notion. Often impact is understood as almost synonymous with dissemination (Baume, Martin, and Yorke 2002). However, the two are not the same. Impact concerns the changes that a project effects on participants, the project environment, or further afield, while dissemination concerns the sharing of project information with others who may or may not be consequently affected.

Influence affects a community when members are made aware of something (such as an argument or an example) which they find persuasive. As a result, members may change behaviours or thinking, and potentially affect third parties. Thus, dissemination is a pre-requisite for influence, and influence is a facet of impact. This interpretation is supported by Coombs, Lewis and Denning (2007), who present influence as just one aspect of an outcome-based typology of impact.

While an intervention may have positive, negative or neutral impact, the term is generally used to indicate beneficial outcomes. SWRGPD, the South West Regional Group for Professional Development, in its efforts to find ways of evaluating the impact of UK continuing professional development on teachers, their pupils and their schools, notes that impact may be 'interpreted variously by stakeholders adopting different perspectives and drawing on different sorts of evidence' (SWRGPD 2007, 3). SWRGPD explores a range of typologies that deconstruct impact into the physical, intellectual, practical, financial and/or emotional outcomes resulting from a given activity.

Uses of the term by funding bodies

Research funding bodies appear to vary in the extent to which they see impact as troublesome. For example, the UK Economic and Social Research Council (ESRC) simply

discriminates between 'alpha' rated research and 'beta' rated research, the latter of which they define as '[a]pplications that are generally good and worthy of support, but are unlikely to have a significant impact' (ESRC 2008, 14). This suggests that the impact of funding applications (and, by implication, the resultant research) is an accepted and discernable attribute for this funding council, its peer reviewers and its project teams.

The UK Engineering and Physical Sciences Research Council (EPSRC) has developed a scorecard (EPSRC 2008) to accompany the current EPSRC delivery plan (EPSRC 2007). This measures the impact of EPSRC activity through a combination of targets and milestones. In both documents, the word impact is used primarily in the context of economic impact.

The UK Arts and Humanities Research Council (AHRC), however, appears to have found the notion of impact less clear. In order to articulate the aspects of impact which research projects may affect beyond the 'traditional focus on economic benefits' (AHRC 2008, 8), a framework has been developed which describes personal and public 'instrumental' and 'intrinsic benefits'. The AHRC is concerned to evidence the benefits of the activities it funds while acknowledging the difficulty in measuring intrinsic effects: '[i]t is important to avoid being driven only by what can be measured and valued' (13).

This small sample of usages of the term impact is indicative of the range and variety of meanings with which research funding bodies load the term. The ways in which impact is measured are similarly varied. SWRGPD (2007) highlights the tensions in demonstrating a 'causal link' between an intervention and a learning outcome, and the difficulties and dangers of too prescriptive an approach to impact evaluation:

> It would, perhaps, be reassuring, (especially to the funding agent and to its political masters/mistresses), to be able to point with complete confidence towards methods of evaluating impact that fulfil all expectations in a 'systematic' way, but to do so would run the risk of neglecting some important issues, and could, if it became extremely instrumental in its emphasis, dull the highly illuminating heterogeneity and fuzziness of what providers do at present (22).

Evidencing aspects of impact is important for any educational development project team in establishing the benefits of their activity. As different funding bodies require different aspects to be considered, no single approach can satisfy all. It therefore seems reasonable to suggest that an approach which enables different facets of collected data to be represented in different ways could be useful to researchers and evaluators.

Uses of the term by the CETL evaluators

Commercial project management guidelines stress the importance for a project team of establishing the purpose of a project to its funders and agreeing the basis on which success will be measured and payment made (Office of Government Commerce 2005). Educational development project teams have been advised to do likewise (Baume, Martin, and Yorke 2002). However, this is not always straightforward.

A key phrase in the original CETL bid document of which the meta-evaluation report makes much is:

> The purpose of CETLs is to reward excellent teaching practice and to invest in that practice further in order **to increase and deepen its impact across a wider teaching and learning community** (HEFCE 2004, 1).

Saunders et al. (2008, 4) both embolden the wording as above and speak of HEFCE's 'key metaphoric phrase "deepen its impact"'. The meta-evaluation team have chosen to explore the CETL initiative's impact through an embedded change lens they call a 'trajectory approach'. This sets out a series of levels against which the effects of an intervention are to be evaluated, from 'Level 1: Quality of the experience of the intervention' to 'Level 5: Impact on macro or long term strategic objectives' (116).

The meta-evaluation report also sets out a theory of change comprising three stages ('awareness', 'exploring wider effects' and 'adaptation and extension') against which the impact of the initiative can be assessed. Viewed in this way, the CETLs progress was found to be patchy at best, and difficult to capture from the evidence supplied by the self-evaluation reports.

An unintended result of the concurrent and evolving self-evaluation and meta-evaluation processes has been the evaluation of CETLs against a framework which they had not necessarily anticipated. Having been encouraged to report individually what each felt most appropriate, they were judged as a group to have had limited impact, at least in part because their interpretation of impact did not necessarily align with that of the evaluators. Here is a further reason for seeking ways to represent impact flexibly.

How might a CETL demonstrate it has had impact?

Background to the CIPeL case study

The novel tool, the Influence Wheel, which is now considered, was developed and trialled as part of the Centre for Interprofessional e-Learning (CIPeL) CETL's evaluation strategy. The tool attempts to show aspects of impact graphically as an interactive webpage.

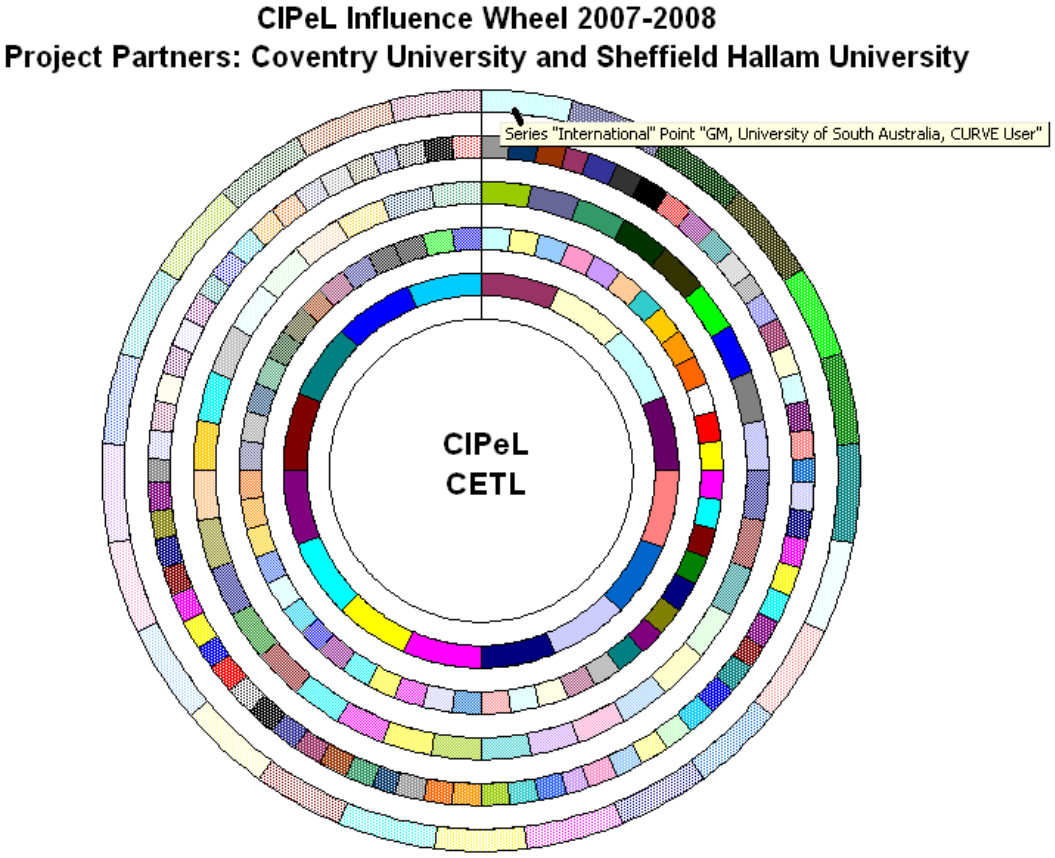

Figure 1. Example Influence Wheel showing hover text on a cell.

CIPeL was established in April 2005 for a period of five years. It capitalised on the experience and expertise of its collaborative partners, Coventry University and Sheffield Hallam University, in delivering inter-professional learning (IPL) and inter-professional e-learning (IPeL) to health and social care students. One of the Centre's aims is to '[a]ct as a beacon of best practice and promote / disseminate IPeL nationally and internationally' (CIPeL 2007a, 3). CIPeL has undertaken numerous pedagogical, research and dissemination activities which are documented in reports, web-pages, individuals' curriculum vitae and elsewhere. As part of its interim review self-evaluation report for HEFCE in July 2007, CIPeL reflected on the notion of CETLs as a change strategy. It identified the 'imperative for CETLs to capture a sense of the changes they inspire, capitalising on their knowledge generation capacity to the benefit of the higher education community' (CIPeL 2007b, 21). This was the impetus for the Influence Wheel project. Through a CIPeL Small Research Project grant, it aimed to elucidate the

extent of CIPeL's influence at an institutional level, the extent of CIPeL's collaborations and its external influence.

Project progress visualisation techniques

Project management has long offered a range of visualisation tools such as annotated gantt charts which are automated in Microsoft ® Project and other planning software. Youll (1990) proposed a number of new techniques which could be adopted to make progress visible in terms of time and cost objectives, and more challengingly, in terms of quality objectives (for example, the number of defects found in software code week-by-week shown as a bar-chart).

The Influence Wheel project proposed to develop a visualisation tool inspired by the wheel generation chart, or circle tree, used in mapping complex family trees. This chart shows an individual at the centre of a circle comprising concentric rings. The central ring is segmented to represent the individual's parents. The segments in the next ring represent the individual's grandparents. Thus each additional ring represents a further generation and contains increasing numbers of segments. Genealogists use this chart to show both the completeness and the gaps in their family tree research.

This proposed visualisation model complemented the structure of the CIPeL team comprising two university partners, a small core team, a group of secondees, and a growing group of associates who had completed CIPeL secondments; with each group a step further away from the central hub. The wheel model also appeared appropriate for a health and social care context, since it does not communicate the negative notions of hierarchy inherent within more usual tree-like structures (Bate 2000).

The Influence Wheel is far from being the first tool to show project data as concentric circles. Turner (2002, 86) uses an 'influence and control diagram' which shows 'where issues or opportunities sit in terms of the team's or individual's ability to control and influence them'. More recently, Blinco and McLean (2004) proposed the 'wheel of fortune', as a way of representing a 'cosmic' view of data repositories. Alternative approaches which other educational development projects may prefer to explore to demonstrate impact include social network maps and blog cross-referencing software.

Research methodology and outcomes

Action research

The Influence Wheel project ran from 2007 to 2008. While the work did not require specific ethical approval, it was able to call on CIPeL's well-established ethical research framework and procedures if necessary. The project adopted a modified action research model (McNiff and Whitehead 2002) with each of two iterations comprising questioning, designing, trialling and evaluating stages. This approach was chosen in order to develop a speedy response to this particular set of circumstances (Bowling 1997). While an empowering solution was sought for the CIPeL team (Stringer 2007), a generalisable outcome was not the original intention.

The first iteration explored software options, the team's needs and expectations, and the extent to which the first version of the software satisfied these. A colleague from the Sigma CETL was consulted regarding the proposed solution, providing positive and supportive feedback.

The second iteration of the research involved extensive data collection. Evaluation at each partner institution was undertaken with at least one academic, one administrator and one technician. These representatives were interviewed and their input used to further revise the appearance of the tool. Data accuracy and completeness were issues of concern which delayed completion of the project. Finally, the CIPeL Influence Wheel diagrams for 2006/7 and 2007/8 were circulated to the full team for comment. A poster exploring interim findings was presented at the 2008 CETL Network Conference (King 2008). Requests for further details were subsequently received from four other CETLs. A comment on the CETL network website regarding this tool says: 'This is really interesting. The idea of concentric circles is powerful' <http://cetl-network.pbwiki.com/Impact-and-Dissemination>.

Software evolutions

Gilb and Finzi's (1988) evolutionary delivery method was adopted. This approach to software development is pragmatic. It encourages the developers of software to provide their target users with the most important functionality at the earliest possible opportunity. Like prototyping, this strategy assists users in clarifying, and where necessary adjusting, their requirements. Unlike a prototyping approach, the software that is developed is intended for live use. While it may later be replaced with a new evolution of the software, every evolution should provide the users with the solution to a problem, enabling them to do something which they previously could not.

The doughnut graph within Microsoft ® Office Excel was selected as the development platform. (Doughnut graphs are composite pie-charts enabling two or more sets of data to be compared.) This produces segmented concentric circles representing the data held in an underlying spreadsheet. The number and naming of the circles is controlled by the columns. The cells in each circle correspond to those rows which have an entry in the relevant column. This software has the advantages of being widely available, familiar to both academic and administrative colleagues, and easily integrated into a website. Although more sophisticated or adaptable solutions may be available, Excel was selected as adequate for project purposes.

The evolutions through which the Influence Wheel passed may be summarised as:

(1) A seven circle model developed in the first action research iteration which reflected CIPeL's Marketing and Dissemination Strategy. It showed the two partners in the central circle and CIPeL's international influence in the outside circle. Hover text appeared when the mouse moved over a cell, giving the first 50 characters of the underlying data: for example, the name of a journal paper, dissemination activity or CIPeL collaborator.

(2) The second evolution developed in the second action research iteration retained seven circles. An annotation box on the left explained how to use the graph and how to make the hover text display. A key on the right explained what each of the circles represented. The software was set so that each cell was a different colour, but the colours themselves were not significant. This was thought by some evaluators to be problematic. The hover text for each cell prefixed the name of the ring with the word 'series' and the name of the cell with the word 'point'. This was a remnant of the software's original function as a doughnut graph and was thought unhelpful by some evaluators.

(3) The third evolution, also developed in the second action research iteration, was made available through the website (CIPeL 2008). This version retained the hover text but had more white space and used just five circles (categories of influence), with the central circle representing the core team, and the outermost circle representing international links, outputs and activities. Much more than simple dissemination was mapped. The diversity and geographic spread of users of CIPeL's repository of learning objects were depicted, as were numerous evaluated implementations of inter-professional e-learning.

The first iteration of the evaluation revealed that CIPeL had recorded a great deal of external activity but only limited internal activity. Team members at each of the partner institutions also reported feeling that the CIPeL CETL was better known externally than internally. This provided useful insight for the team and informed their subsequent activity recording policies and dissemination activities. CIPeL's director was able to say in a later interview 'We're not fighting our way any more. Doors have opened because people see we can help. It's about our readiness: being ready for their need'. The team consider that CIPeL has become embedded in the local consciousness: CIPeL input is accepted by local management as an essential element of curriculum development in remodelling relevant undergraduate and postgraduate provision.

The combination of action research and evolutionary design adopted by the project ensured that a useful tool was made available to the team within a matter of weeks, then refined as its potential became better understood. The final product adequately fulfils CIPeL's needs, however, a user-centred design approach (Preece, Rogers, and Sharp 2002) might have improved usability. Further work to refine the data input process would be beneficial as would more sophisticated control of the hover text content.

How might CETLs adapt impact evidence for new audiences?

The CETL initiative meta-evaluation report was critical of the CETLs' self-evaluation reports because few contained a coherent and theorised evaluation strategy. The evaluators reported tensions for CETLs in providing an honest self-evaluation whilst presenting themselves as successful and worthy funding recipients. Saunders et al. (2008) also report concerns that, firstly, CETLs are inconsistent in how they categorise the impact of a given kind of activity; and secondly that it is difficult to know what evidence is being used to support a given claim of impact.

If CETLs were to use a tool such as the Influence Wheel, then more consistent reporting could be achieved. This approach would also make it easier to identify the evidence used to support a claim of impact. CETLs could collect exemplars of activity and store them as a list in a spreadsheet. Likely evaluation categories could be logged in the spreadsheet and activities that provide evidence for each category could be marked. A given activity might be marked as evidence for several different categories.

Blamey and Mackenzie (2007) argue that the benefit for a project of taking a theory of change approach is the insight it provides as to whether predetermined outcomes can be achieved by undertaking particular activities. Verity and Trowler (2008, 3) suggest that the CETL initiative 'seemed to altogether lack a strategy for change' and that its weaknesses could be attributable to this. SWRGPD (2007) comment that the impact analyses they investigated tended to be ad hoc, untheorised and retrospective. They recommend that an outcome typology to frame subsequent evaluation of impact in a given context should be pre-selected and agreed. Ideally this would be so. Baume, Martin and Yorke(2002) recommend that any educational development project agrees the evaluation framework in advance with their funders so that they can focus their efforts.

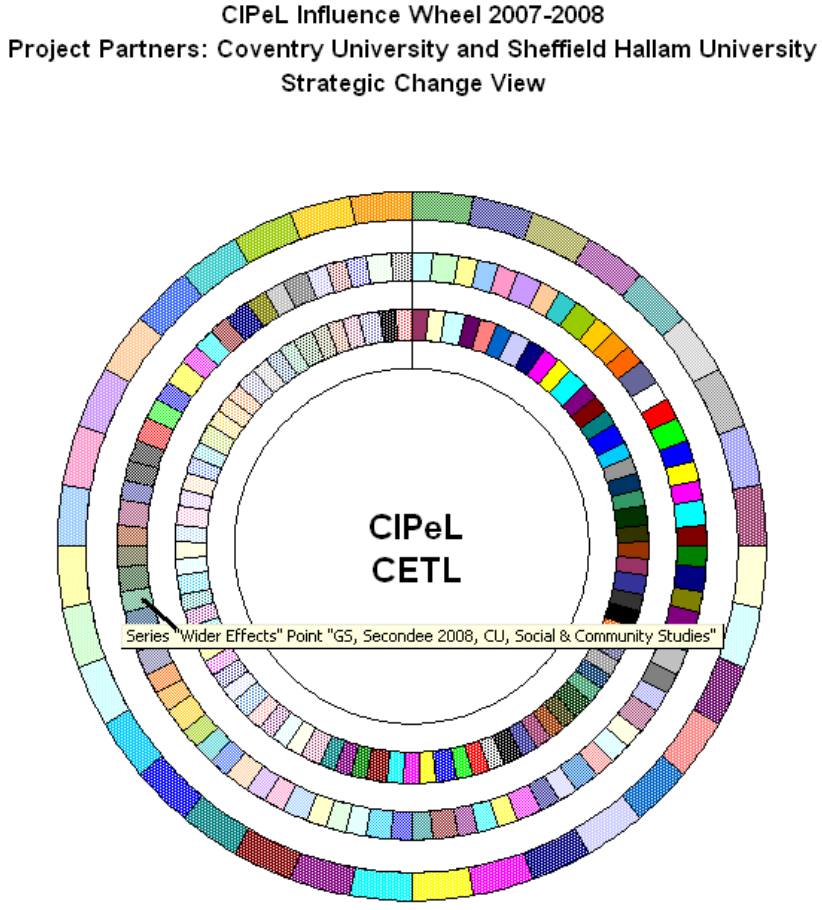

Figure 2. Revised Influence Wheel with new framing structure.

The CETLs must demonstrate their impact to HEFCE and to a range of alternative future funders. The flexibility of the Influence Wheel potentially provides the means to illustrate almost any selected set of evaluation categories from a single underlying spreadsheet containing a list of impact evidence. For example, the Influence Wheel could evolve to evidence CETLs as a change strategy as proposed by Saunders et al. (2008). The circles would in this case represent 'awareness', 'exploring wider effects' and 'adaptation and extension'. To demonstrate this, the spreadsheet used to produce Figure 1 was reviewed. The new framing structure was created by renaming three columns. Each row of data was re-categorised against these columns. The particular cell highlighted in Figure 2 contributes to 'exploring wider effects' through its 'impact on students' (7).

This example demonstrates how the tool can be used to enable a project team's collection of impact evidence to reflect alternative understandings of impact.

Conclusion

This paper has described the CETL initiative and its evaluation process. It set out to answer three questions regarding project impact:

Firstly, it explored a number of alternative approaches to understanding what might count as research impact. It finds that the term is used differently and evaluated differently by a sample of research funders. The difficulties this can give rise to are exemplified by the CETL initiative where the absence of a pre-agreed evaluation framework and lack of alignment in the interpretation of impact between the evaluators and the CETL project teams contributed to the mid-stage evaluation finding only limited impact.

Secondly, it showed how a CETL might demonstrate, at least partly, that it has had an impact on teaching and learning practice beyond its original audience. Project management has long identified performance measurement and the communication of progress as problematic and found that visualisation techniques are helpful in communicating progress with stakeholders. This study found that CIPeL's dissemination activities, stakeholder involvement and wider influence could be visualised through the adaptation of the Excel (TM) doughnut graph. Although data input must be painstaking in its accuracy and is potentially duplicative of other CETL evaluation recording, the Influence Wheel model is helpful in evidencing project achievements. The interest generated amongst the CETL community indicates that, despite perceived limitations, this approach has potential for use by other CETLs and other educational development teams.

Finally, it considered how a CETL might adapt its evidence to retain or gain funding in the future. It cannot be predicted who would have to be convinced, nor what evidence of prior impact would be required. This paper suggests that it is possible to represent selected aspects of impact which may be of interest to a range of audiences from a single data source. The tool is flexible and can be adapted to depict any categories of influence required. The examples of the Influence Wheel use in the CETL context are illustrative of its wider potential in evidencing the impact of educational developments.

Notes on Contributor

Virginia King is a higher education consultant specialising in project management, peer-review and research evaluation. A founder member of the iPED (Inquiring Pedagogies) Research Network, she convenes their annual international conference www.coventry.ac.uk/iPED. Formerly academic leader of the information systems group at Coventry University, her diverse research interests include the staff experience, web-based communities, project visualisation techniques and the use of technology to enhance higher education provision.

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